Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

List of Claims:

Claim 1 (Currently Amended): A method for distributing a reference time in a network having a plurality of nodes, the method comprising the steps of:

generating a network-wide time signal using a reference time generator;

distributing the network-wide time signal ~~over the network to the plurality of nodes~~ from a first node to a first segment of the network having a plurality of nodes;

distributing the network-wide time signal to a first bridge portal;

distributing said network-wide time signal from a second bridge portal to a second segment of the network having a plurality of nodes;

converting, at each respective node, the network-wide time signal to a local synchronization signal; ~~and~~

~~synchronizing the timing of each node using the local synchronization signal~~

wherein the network-wide time signal is distributed in at least said first network segment using a network-inherent synchronization event along with a low-order time, with a bridge synchronizing the network-inherent synchronization event between said first and second bridge portals, and wherein a high-order time is distributed in the network.

Claim 2 (Original): The method of claim 1, further comprising the step of:

tracking signal propagation delay at each node of the network using the network-wide time signal; and,

wherein the step of converting includes the step of:

generating the local synchronization signal using the signal propagation delay of the respective node.

Claim 3 (Original): The method of claim 2, wherein the step of tracking further comprises the steps of:

maintaining a network-wide time signal as a network cycle master signal at a designated cycle master node of the plurality of nodes of the network;

maintaining a local cycle master signal at each respective node of the network; and

determining the signal propagation delay at each respective node from the difference between the respective local cycle master signal and the network cycle master signal.

Claim 4 (original): The method of claim 1, wherein the network cycle master signal and each local cycle master signal is stored in a respective network cycle master register and local cycle master register, respectively, at each respective node.

Claim 5 (Original): The method of claim 1, wherein the network-wide time signal is a house synchronization (synch) signal.

Claim 6 (Original): The method of claim 1, wherein the local synchronization signal has an associated frequency.

Claim 7 (Original): The method of claim 1, wherein the step of synchronization includes the step of:

phase locking the local synchronization signal to a predetermined cycle value.

Claim 8 (Original): The method of claim 1, wherein the step of synchronizing includes the step of:

performing delay compensation at each respective node.

Claim 9 (Original): The method of claim 8, wherein the delay compensation is performed by adding an extra signal delay to the local synchronization signal.

Claim 10 (Original): The method of claim 1, wherein the plurality of nodes includes:

at least one IEEE 1394-compliant node.

Claim 11 (Original): The method of claim 1, wherein the step of generating the network-wide time signal includes the step of:

utilizing a rubidium reference signal generator.

Claim 12 (Original): The method of claim 1, wherein the step of generating the network-wide time signal includes the step of:

utilizing a global positioning system (GPS)-based reference signal generator.

Claim 13 (Currently Amended): A system comprising:

a network including a plurality of nodes; and

a reference time generator for generating a network-wide time signal;

wherein a designated node of the plurality of nodes is connected to the reference time generator, and distributes the network-wide time signal over the network to the plurality of nodes; [[and]]

wherein each node of the plurality of nodes of the network converts the network-wide time signal to a local synchronization signal, and synchronizes the timing of each node using the local synchronization signal; and,

wherein the network-wide time signal is distributed in at least one network segment using a network-inherent synchronization event along with a low-order time, with a bridge synchronizing the network-inherent synchronization event between first and second bridge portals, and wherein a high-order time is distributed in the network.

Claim 14 (Original) The system of claim 13, wherein each node tracks signal propagation delay using the network-wide time signal, and converts the network-wide time

signal by generating the local synchronization signal using the signal propagation delay of the respective node.

Claim 15 (Original) The system of claim 14, wherein the designated node maintains the network-wide time signal as a network cycle master signal.

Claim 16 (Currently Amended): The system of claim 15, wherein the designated node includes a network cycle master register for storing the network cycle master signal; and

each node of the plurality of nodes of the network includes a respective local cycle master register for storing the local cycle master signal.

Claim 17 (Original): The system of claim 13, wherein the plurality of nodes includes:

at least one IEEE 1394-compliant node.

Claim 18 (Currently Amended): A system for facilitating timing functions in a network, the system comprising:

a plurality of nodes forming the network, with each node performing local timing control;

a reference time generator for generating the network-wide time signal; and

a plurality of applications operating using timing functions under local timing control, with each node of the plurality of nodes associated with at least one application;

wherein a designated node of the plurality of nodes is connected to the reference time generator, and distributes the network-wide time signal over the network to the plurality of nodes; [[and]]

wherein each node of the plurality of nodes of the network converts the network-wide time signal to a local synchronization signal, and synchronizes the timing of each node and the at least one application associated with the respective node using the local synchronization signal; and

wherein the network-wide time signal is distributed in at least one network segment using a network-inherent synchronization event along with a low-order time, with a bridge synchronizing the network-inherent synchronization event between first and second bridge portals, and wherein a high-order time is distributed in the network.

Claim 19 (Currently Amended): The system of claim 18, wherein the designated node maintains the network-wide time signal as a network cycle master signal in a network cycle master register, and

wherein each node tracks signal propagation delay using the network-wide time signal, and converts the network-wide time signal by generating the local synchronization signal using the signal propagation delay of the respective node, to maintain a respective local cycle master signal in a respective local cycle master register, and to determine a respective signal propagation delay at each respective node from the difference between the respective local cycle master signal and the network cycle master signal.

Claim 20 (Original) The system of claim 18, wherein the plurality of nodes includes: at least one IEEE 1394-compliant node.

Claim 21 (New) The method of claim 1, wherein the network inherent synchronization event is a cycle start packet in an IEEE1394-compliant network.

Claim 22 (New) The method of claim 1, wherein the low-order time is a cycle_time in an IEEE1394-compliant network.

Claim 23 (New) The method of claim 1, wherein the high-order time is a bus_time.

Claim 24 (New) The method of claim 1, wherein the low-order time and the high-order time overlap.